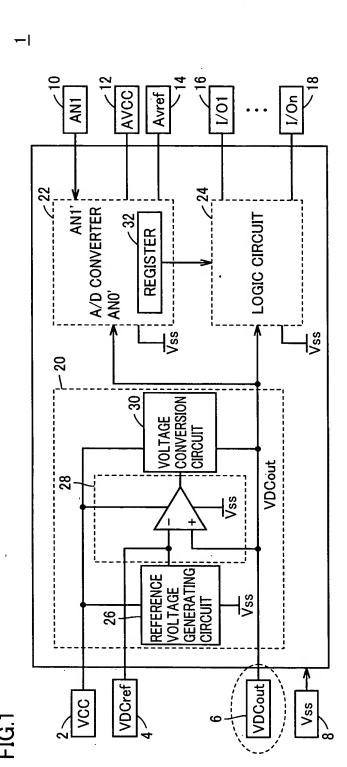
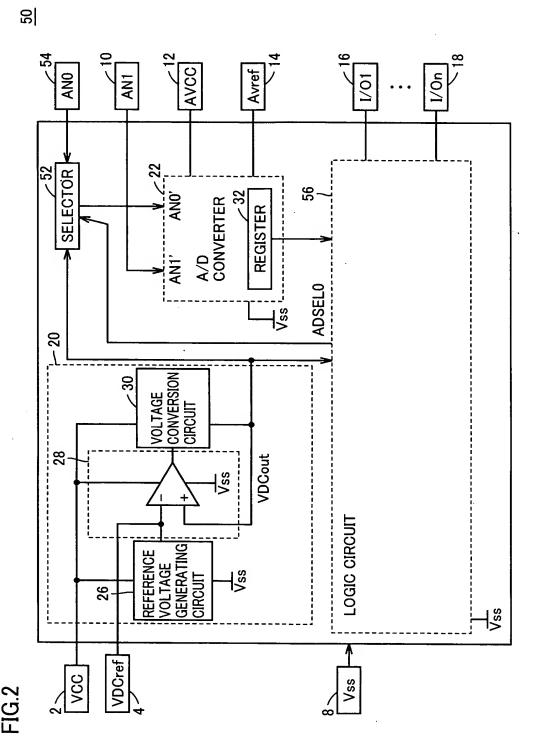
APPLN, FILING DATE: MARCH 24, 2004
TITLE: SEMICONDUCTOR INTEGRATED CIRCUIT IN
WHICH VOLTAGE DOWN CONVERTER OUTPUT CAN
BE OBSERVED AS DIGITAL VALUE AND VOLTAGE
DOWN CONVERTER OUTPUT VOLTAGE...
INVENTOR(S): TADAYOSHI NAKANO ET AL.
ATTORNEY DOCKET No.: 009683-501 SHEET 1 OF 24

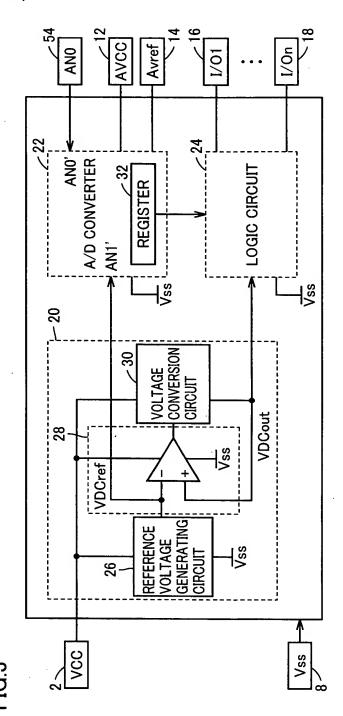


APPLN. FILING DATE: MARCH 24, 2004
TITLE: SEMICONDUCTOR INTEGRATED CIRCUIT IN
WHICH VOLTAGE DOWN CONVERTER OUTPUT CAN
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DOWN CONVERTER OUTPUT VOLTAGE...
INVENTOR(S): TADAYOSHI NAKANO ET AL.
ATTORNEY DOCKET NO.: 009683-501 SHEET 2 OF 24



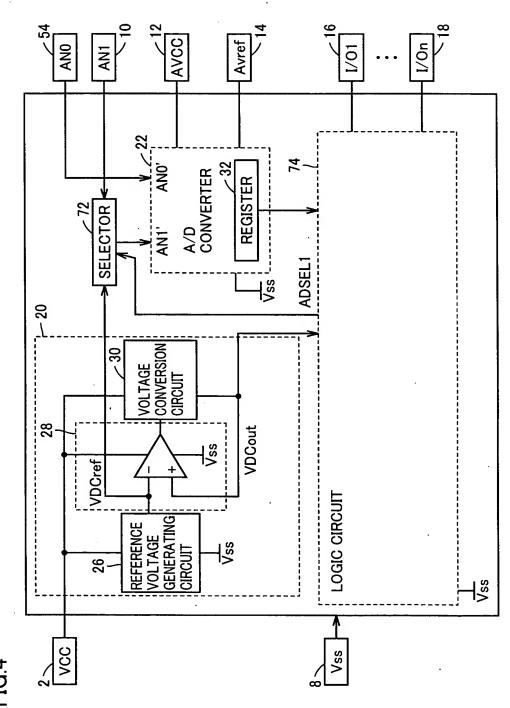
APPLN. FILING DATE: MARCH 24, 2004
TITLE: SEMICONDUCTOR INTEGRATED CIRCUIT IN
WHICH VOLTAGE DOWN CONVERTER OUTPUT CAN
BE OBSERVED AS DIGITAL VALUE AND VOLTAGE
DOWN CONVERTER OUTPUT VOLTAGE A
INVENTOR(S): TADAYOSHI NAKANO ET AL.
ATTORNEY DOCKET NO.: 009683-501 SHEET 3 OF 24





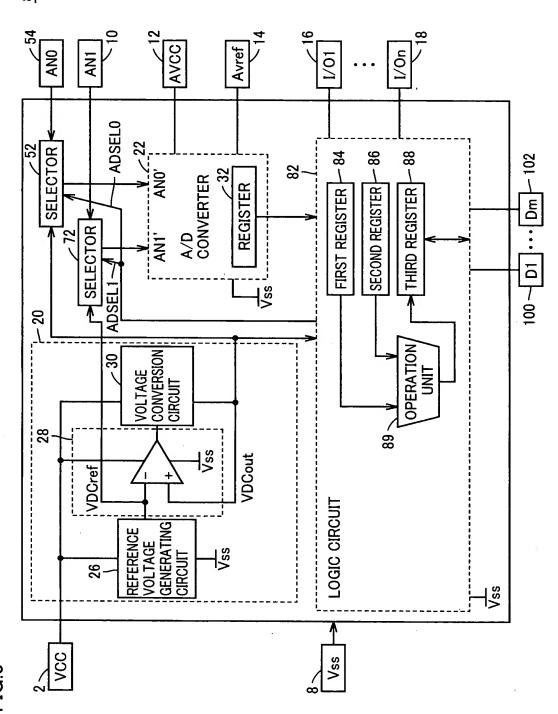
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TITLE: SEMICONDUCTOR INTEGRATED CIRCUIT IN
WHICH VOLTAGE DOWN CONVERTER OUTPUT CAN
BE OBSERVED AS DIGITAL VALUE AND VOLTAGE
DOWN CONVERTER OUTPUT VOLTAGE
INVENTOR(S): TADAYOSHI NAKANO ET AL.
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APPLN. FILING DATE: MARCH 24, 2004
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INVENTOR(S): TADAYOSHI NAKANO ET AL.
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APPLN. FILING DATE: MARCH 24, 2004
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DOWN CONVERTER OUTPUT VOLTAGE ...
INVENTOR(S): TADAYOSHI NAKANO ET AL.
ATTORNEY DOCKET NO.: 009683-501 SHEET 6 OF 24

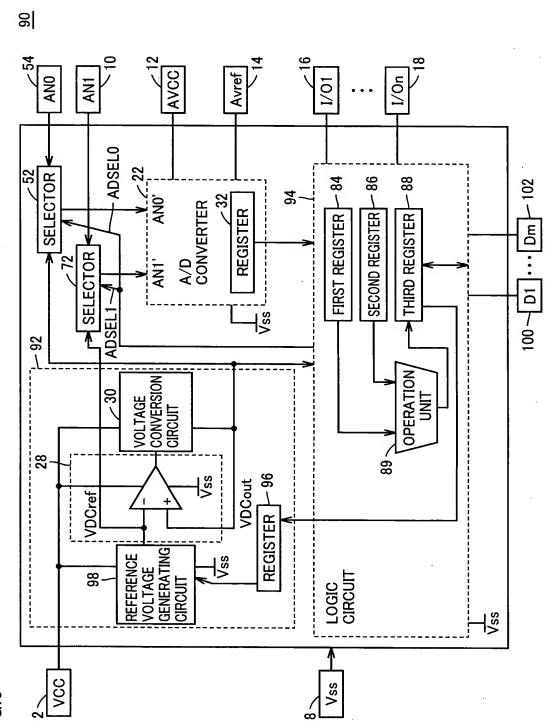
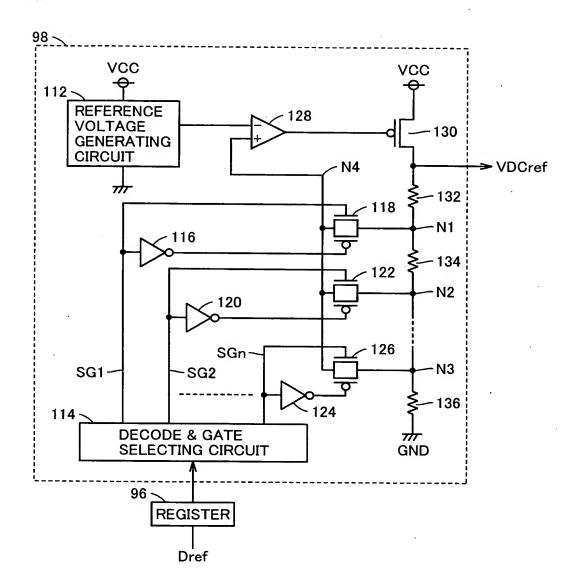


FIG.6

APPLN. FILING DATE: MARCH 24, 2004
TITLE: SEMICONDUCTOR INTEGRATED CIRCUIT IN
WHICH VOLTAGE DOWN CONVERTER OUTPUT CAN
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INVENTOR(S): TADAYOSHI NAKANO ET AL.
ATTORNEY DOCKET NO.: 009683-501 SHEET 7 OF 24

FIG.7



APPLN. FILING DATE: MARCH 24, 2004
TITLE: SEMICONDUCTOR INTEGRATED CIRCUIT IN
WHICH VOLTAGE DOWN CONVERTER OUTPUT CAN
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DOWN CONVERTER OUTPUT VOLTAGE
INVENTOR(S): TADAYOSHI NAKANO ET AL.
ATTORNEY DOCKET NO.: 009683-501 SHEET 8 OF 24

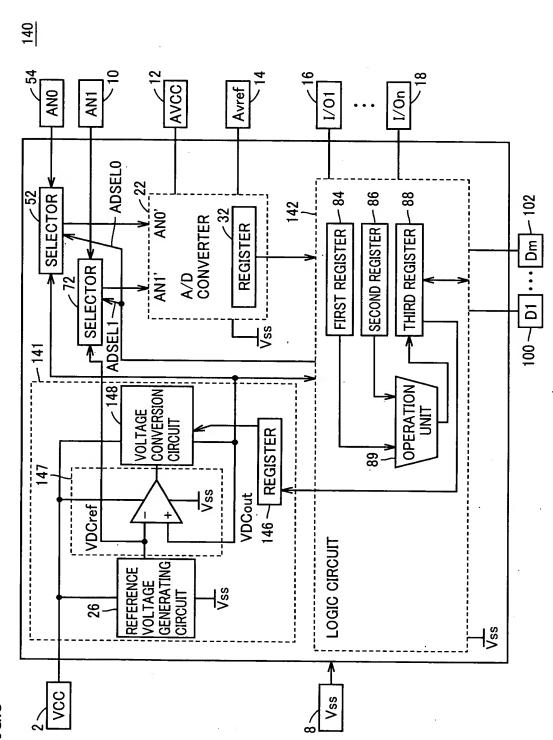


FIG.8

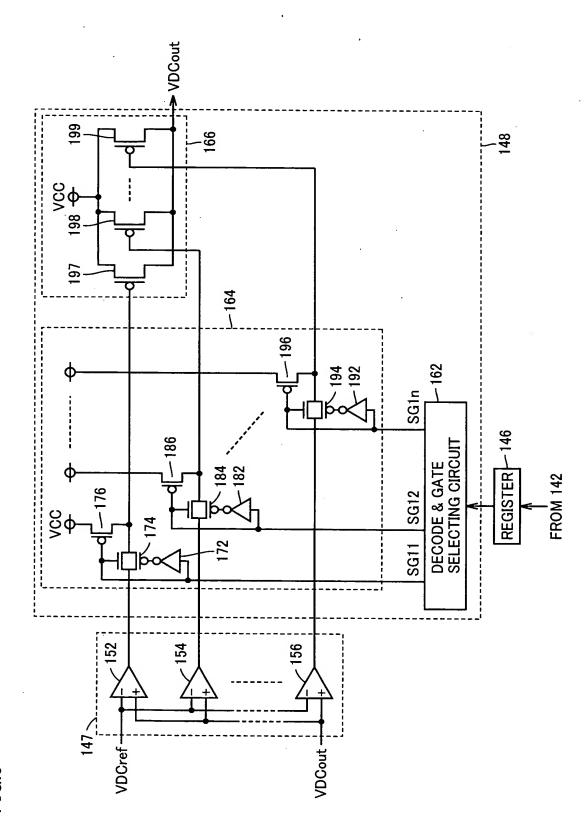


FIG 9

APPLN. FILING DATE: MARCH 24, 2004
TITLE: SEMICONDUCTOR INTEGRATED CIRCUIT IN
WHICH VOLTAGE DOWN CONVERTER OUTPUT CAN
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DOWN CONVERTER OUTPUT VOLTAGE
INVENTOR(S): TADAYOSHI NAKANO ET AL.
ATTORNEY DOCKET NO.: 009683-501 SHEET 10 OF 24

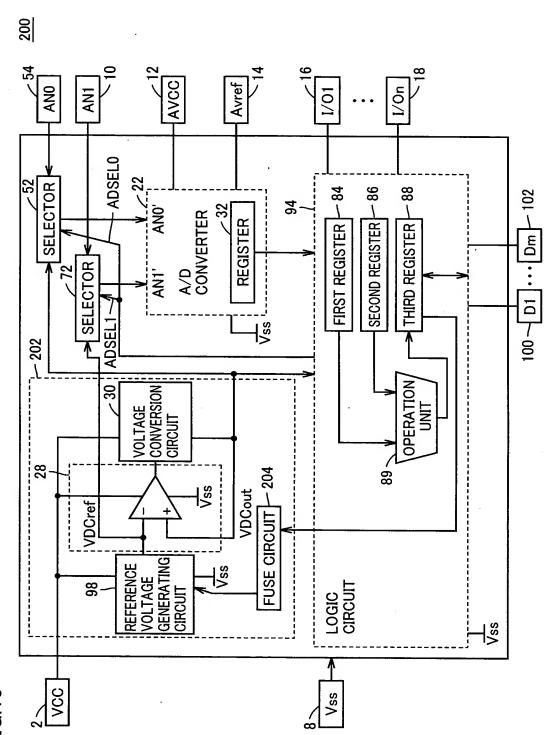
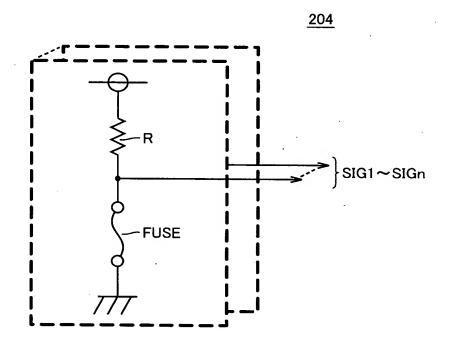


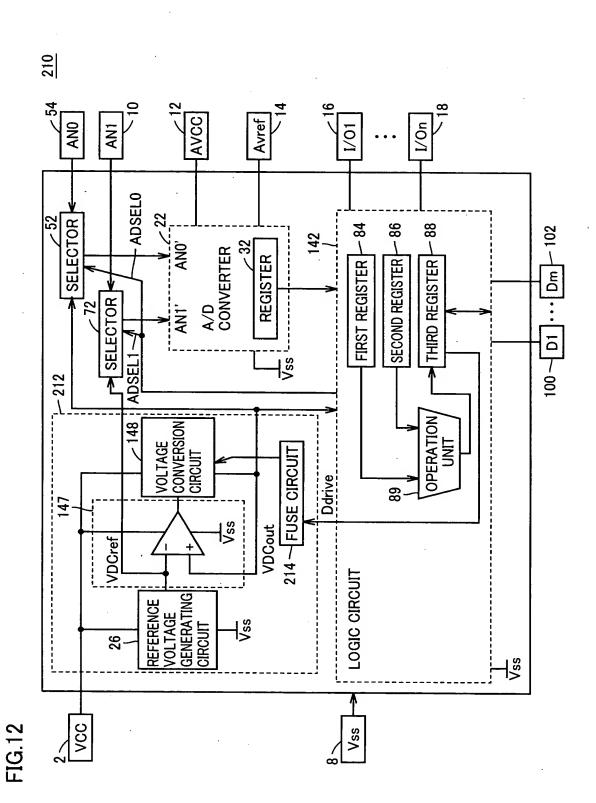
FIG. 10

APPLN. FILING DATE: MARCH 24, 2004
TITLE: SEMICONDUCTOR INTEGRATED CIRCUIT IN
WHICH VOLTAGE DOWN CONVERTER OUTPUT CAN
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DOWN CONVERTER OUTPUT VOLTAGE
INVENTOR(S): TADAYOSHI NAKANO ET AL.
ATTORNEY DOCKET NO.: 009683-501 SHEET 11 OF 24

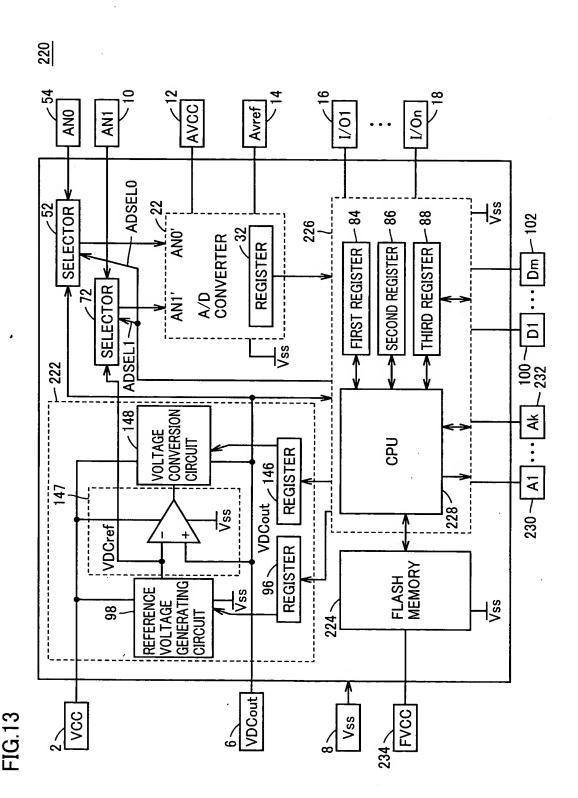
**FIG.11** 



APPLN. FILING DATE: MARCH 24, 2004
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DOWN CONVERTER OUTPUT VOLTAGE
INVENTOR(S): TADAYOSHI NAKANO ET AL.
ATTORNEY DOCKET NO.: 009683-501 SHEET 12 OF 24

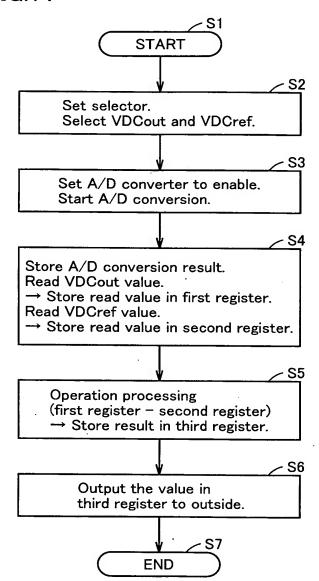


APPLN. FILING DATE: MARCH 24, 2004
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DOWN CONVERTER OUTPUT VOLTAGE . . .
INVENTOR(S): TADAYOSHI NAKANO ET AL.
ATTORNEY DOCKET No.: 009683-501 SHEET 13 OF 24



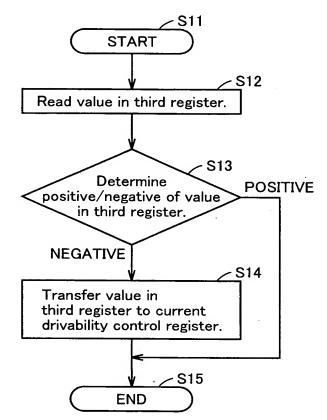
APPLN. FILING DATE: MARCH 24, 2004
TITLE: SEMICONDUCTOR INTEGRATED CIRCUIT IN
WHICH VOLTAGE DOWN CONVERTER OUTPUT CAN
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INVENTOR(S): TADAYOSHI NAKANO ET AL.
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**FIG.14** 



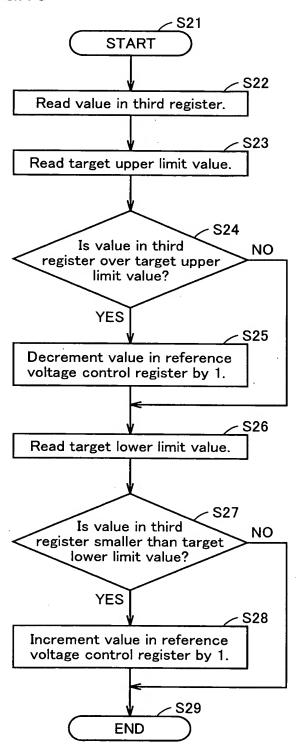
APPLN. FILING DATE: MARCH 24, 2004
TITLE: SEMICONDUCTOR INTEGRATED CIRCUIT IN
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INVENTOR(S): TADAYOSHI NAKANO ET AL.
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**FIG.15** 

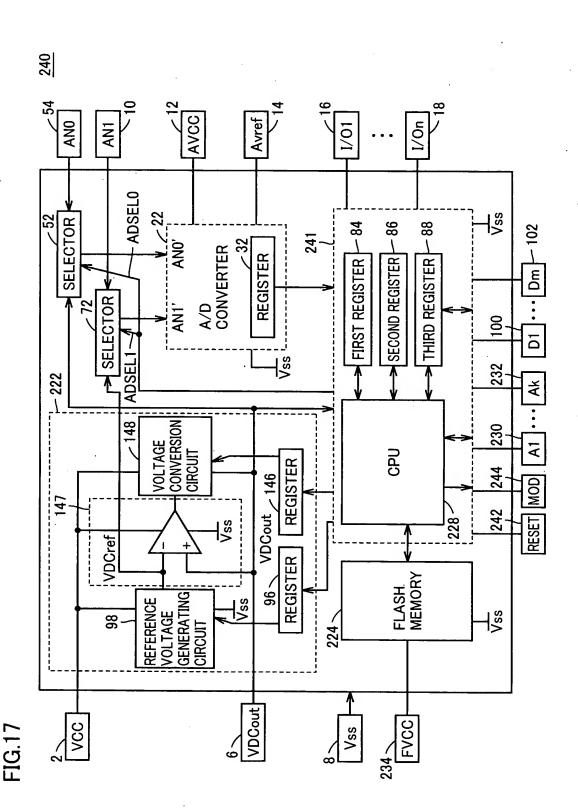


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TITLE: SEMICONDUCTOR INTEGRATED CIRCUIT IN
WHICH VOLTAGE DOWN CONVERTER OUTPUT CAN
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INVENTOR(S): TADAYOSHI NAKANO ET AL.
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**FIG.16** 



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INVENTOR(S): TADAYOSHI NAKANO ET AL.
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APPLN. FILING DATE: MARCH 24, 2004
TITLE: SEMICONDUCTOR INTEGRATED CIRCUIT IN
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DOWN CONVERTER OUTPUT VOLTAGE
INVENTOR(S): TADAYOSHI NAKANO ET AL.
ATTORNEY DOCKET NO.: 009683-501 SHEET 18 OF 24

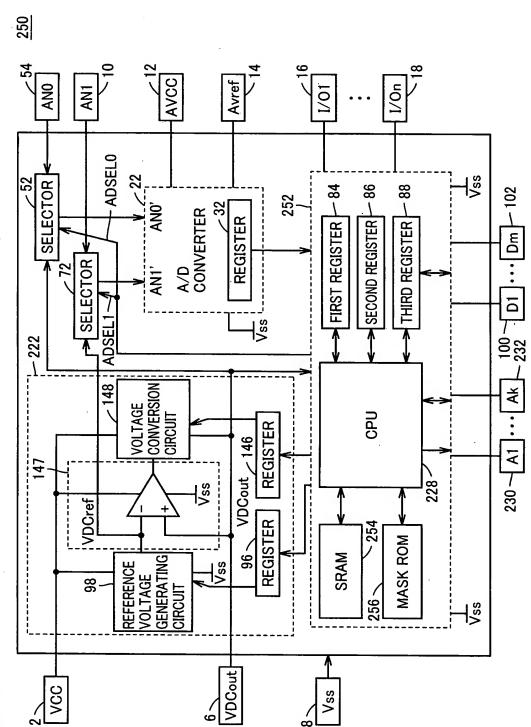
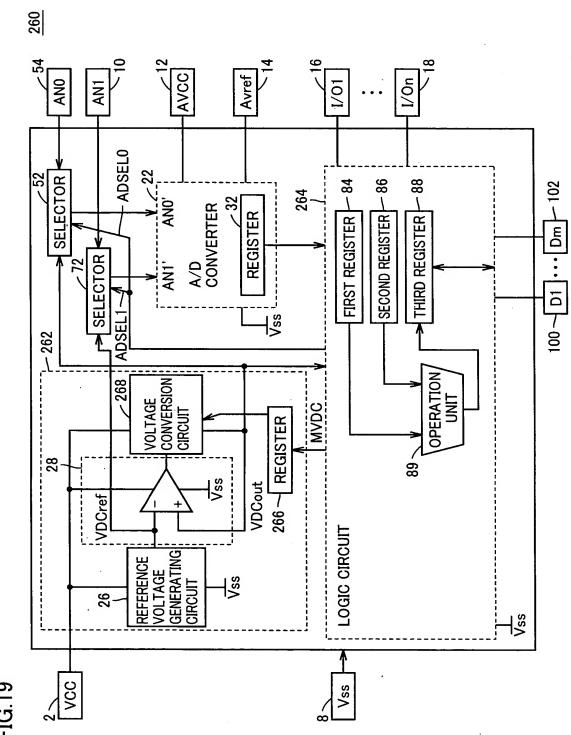


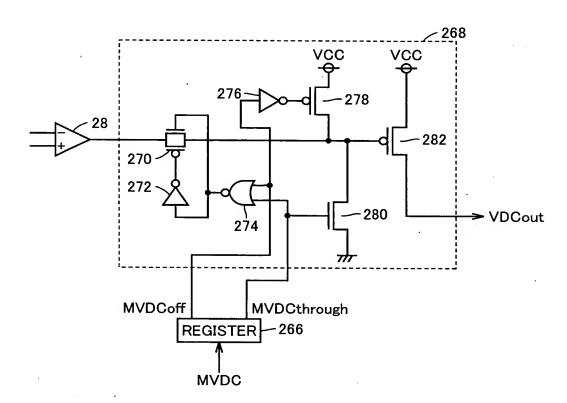
FIG. 12

APPLN. FILING DATE: MARCH 24, 2004
TITLE: SEMICONDUCTOR INTEGRATED CIRCUIT IN
WHICH VOLTAGE DOWN CONVERTER OUTPUT CAN
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DOWN CONVERTER OUTPUT VOLTAGE . . .
INVENTOR(S): TADAYOSHI NAKANO ET AL.
ATTORNEY DOCKET NO.: 009683-501 SHEET 19 OF 24

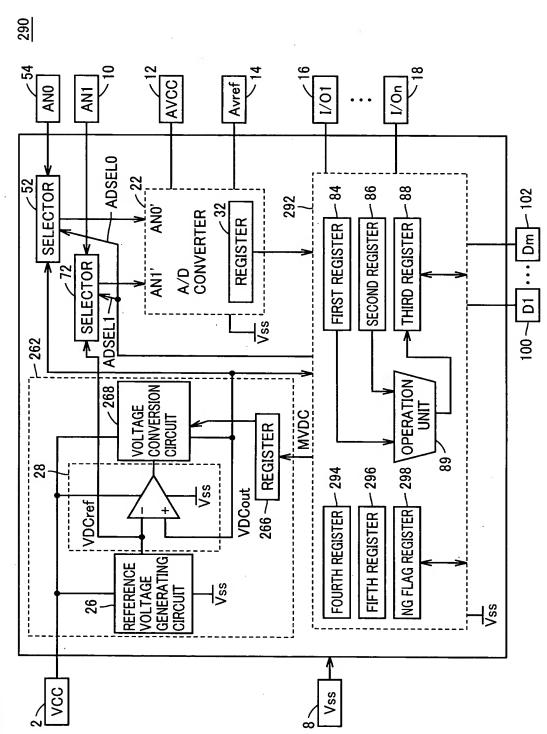


APPLN. FILING DATE: MARCH 24, 2004
TITLE: SEMICONDUCTOR INTEGRATED CIRCUIT IN
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DOWN CONVERTER OUTPUT VOLTAGE . . .
INVENTOR(S): TADAYOSHI NAKANO ET AL.
ATTORNEY DOCKET NO.: 009683-501 SHEET 20 OF 24

FIG.20

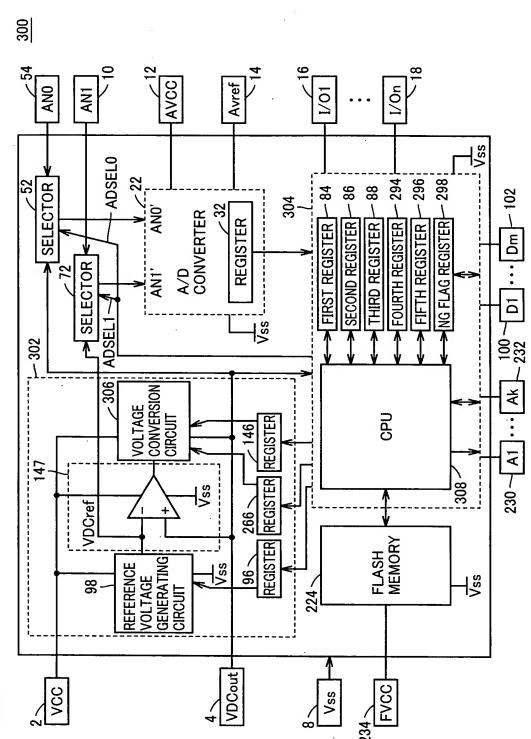


APPLN. FILING DATE: MARCH 24, 2004
TITLE: SEMICONDUCTOR INTEGRATED CIRCUIT IN
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INVENTOR(S): TADAYOSHI NAKANO ET AL.
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**-1**G.21

APPLN. FILING DATE: MARCH 24, 2004
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INVENTOR(S): TADAYOSHI NAKANO ET AL.
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IG.22

APPLN. FILING DATE: MARCH 24, 2004
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DOWN CONVERTER OUTPUT VOLTAGE.
INVENTOR(S): TADAYOSHI NAKANO ET AL.
ATTORNEY DOCKET NO.: 009683-501 SHEET 23 OF 24

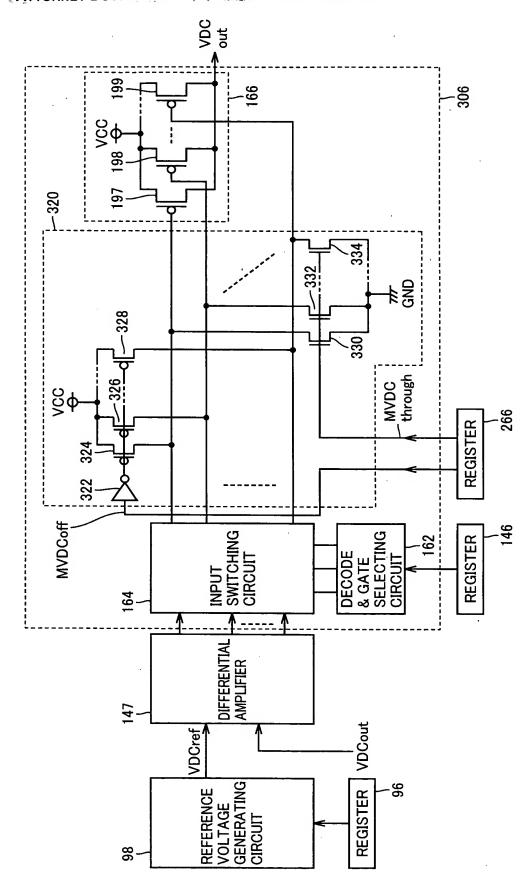


FIG.23

APPLN. FILING DATE: MARCH 24, 2004
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WHICH VOLTAGE DOWN CONVERTER OUTPUT CAN
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DOWN CONVERTER OUTPUT VOLTAGE . . .
INVENTOR(S): TADAYOSHI NAKANO ET AL.
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350 54 AVCC Avref AN0 ANI 701 ADSEL0 294 296 52 SELECTOR 88 -102352 CONVERTER REGISTER NG FLAG REGISTER SECOND REGISTER THIRD REGISTER FOURTH REGISTER FIRST REGISTER FIFTH REGISTER Dm SELECTOR 5 ADSEL1 302 100 306 VOLTAGE CONVERSION ¥ CIRCUIT CPU REGISTER 146 A 147 REGISTER 356 \ss VDCref 266 ~ 254 MASK ROM REGISTER VOLTAGE GENERATING CIRCUIT SRAM REFERENCE 96 VDCout **VCC** Vss

FIG.24